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# Executive functions in understanding certain disabilities within an African context

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Cognitive and social functioning are important aspects of the development of all children. In the transition from one stage of development to another, children are expected to master related skills. There is sufficient literature depicting that children with learning disabilities often experience challenges in a range of executive functions, which are necessary for the successful negotiation of their educational and life-related tasks. As a result, they may require appropriate intervention measures to enable them to address possible limitations. This paper examines the cognitive and social skills deficits that impact on the planning and decision-making outcomes of children with disabilities, using an Afrocentric approach. The Afrocentric paradigm is central in studying and understanding African experiences from an African perspective. Afrocentricity is used as an alternative knowledge system, which places the needs of Africans at the center of focus. In contrast to Eurocentric tendencies, the holistic being, in the African context, is understood and constituted as body, mind, and spirit. While there is sufficient Western literature acknowledging similar holistic views, and biopsychosocial and spiritual dimensions, this paper points out on the lack of emphasis on the latter dimension. The paper concludes that without providing relevant interventions on learner executive functions, the impairment of cognitive and social functioning is likely to continue.

## KEYWORDS

Afrocentric perspective, executive functions, goal-directed behavior, culture, communitarian

## 1. Introduction

As they transition from one stage of development to another, children are expected to master related developmental skills, which place significance on the domains of cognitive, social, cultural and spiritual functioning. For the longest time, the injustices of inadequate access for learners with disabilities, and the consequent limitations, have remained the two main concerns with which various scholars and interest groups have grappled. This paper explores the conception and intervention of the executive functions (EFs) from the Afrocentric perspective, which emphasizes the communitarian view, in contrast to limiting such intervention to an individualist view.

This paper acknowledges the Eurocentric approach of the biological, psychological, social and spiritual dimensions as four possible sources of human disturbances but notes that the social

and spiritual domains appear to lack central attention. Applicable in the African context is the conception of a unified whole, comprised of body, mind, and spirit. Fundamentally, this paper does not dispute the Western notion of “the holistic orientation that inherently recognizes the biopsychosocial-spiritual nature of human beings” (Downs, 2016, p. 31), but argues that there is less attention paid to spiritual dimensions (Mark and Lyons, 2010). As stated by García-Campos et al. (2018, p. 6):

This biopsychosocial-spiritual model is not a “dualism” in which a “soul” accidentally inhabits a body. Rather, in this model, the biological, the psychological, the social, and the spiritual are only distinct dimensions of the person, and no aspect can be disaggregated from the whole.

There is an ongoing need for a culturally affirming education, which is rooted in and reflects the African ethos. Alem (2019) argues that Africans possess a thought system which is embedded in their cultures, and that their way of life is believed to be interactive and communitarian. Eskay et al. (2012) describe culture as a pattern of behavior exhibited in response to diverse phenomena in their environment. Highlighting the significance of personhood, Nwoye (2017) asserts that human beings do not mature through birth but that they are made or constructed. In recognizing the developmental trajectory of EFs along the lifespan, De Luca and Leventer (2008) regard goal-directed behaviors and planning as the beginning of maturity in preschool.

In this context, planning is evident when a child makes a list of what must be achieved to finish prescribed tasks. However, for some of these learners, starting a given task is difficult and they are often then labelled as lazy and procrastinators. This has led them to be unable to prioritize important tasks, and face challenges in time management and meeting due dates. This has also led to these learners being more likely to battle with resisting temptation, be impulsive and thoughtless before they act (Otero and Barker, 2014).

This paper explores the need for an Afrocentric perspective to explain the agency of people experiencing limited EFs. Most people are regarded as executing their actions in a routine manner, based on the notion that most behavioral repertoire is exhibited in the same physical and social environment (Aarts and Dijksterhuis, 2000). Executive skills involve a set of higher-order cognitive processes that allow one to realize a variety of outcomes, namely to plan, organize, and successfully execute purposeful, goal-directed, and future-oriented actions (Temple, 1997; Gioia et al., 2000; Zelazo et al., 2016). Furthermore, Zelazo et al. (2016) regard neurocognitive skills as required to engage in the goal-directed control of thought, action, and emotion. While it is perceived as desirable for persons to develop the ability to achieve purposeful, goal-directed, and future-oriented behavior, it is not unusual to find many people, and children in particular, experiencing developmental difficulties in the performance of “executive tasks, lacking the capacity to plan, monitor, update, and shift their goal-directed actions” (De Luca and Leventer, 2008, p. 45).

A lack of executive skills often inhibits the management of emotions and thoughts and the subsequent regulation of their behavior. Nwoye (2015) identifies the biological, psychological, social, and spiritual dimensions as four possible sources of human disturbance and challenges. The Eurocentric tendency is to focus its

aetiological explanation of mental illness to only the first three domains.

Most studies about executive functioning focus on studies of participants who reside in developed countries, mostly including European ones (Willoughby et al., 2019). In contrast, there have been few studies in Africa on the effects of diseases and infections of cognitive function. This notion stands in contrast to the African holistic conception of the universe and cosmology as a blending of the divine, spirit, human, animate and inanimate beings, which constantly interact with one another (Igboin, 2011).

In the human service profession, spirituality is increasingly recognized as a significant client strength that can aid a client’s well-being (Hodge, 2011). Embracing the cultural and spirituality dimensions, among others, may be essential in providing a holistic human frame of reference and it is, therefore, our conviction in this paper to regard their inclusion as bearing some significance in the Afrocentric perspective. Executive function (EF) deficits are central characteristics of many acquired and developmental disorders of childhood (Gioia et al., 2000). Zelazo et al. (2016, p. 23) concurs that “Self-regulated learning refers to an active form of learning, in which the learner is metacognitively, motivationally, and behaviorally engaged in the learning process.” In this regard, the individualistic view of EFs is regarded as posing a challenge in limiting executive skills, as foundational skills underlying the individual learner, instead of propounding the learner’s functioning and development from the communitarian perspective.

## 2. Executive functions

Executive functions (EFs) are described by neuropsychologists as the abilities that allow a person to engage in purposeful, self-serving behavior, such as volition, planning, the ability to translate a plan into productive behavior, and self-monitoring (Melrose et al., 2018). It represents a broad range of cognitive abilities that appear to be related but can be distinguished into distinct abilities, such as shifting between tasks, updating information in working memory, and inhibiting prepotent responses. Other scholars, including Anderson (2008), refer to EFs as executive control or cognitive control, and do not regard it as a unitary or a linear process, but rather as a collection of various domains, consisting of intellect, thought, self-control, and social interaction. He further asserts that this is regarded as a psychological construct that is composed of multiple interrelated high-level cognitive skills. The four domains of learning, memory, response time and intrinsic intelligence are used to characterize cognitive function, attendance, and academic success, to describe educational outcome indicators (Ezeamama et al., 2018). Learning disorders (LD) have also been linked to executive dysfunctions, characterized by a child having significant difficulty in specific areas, such as reading or writing (El Wafa et al., 2020).

The studies investigating the neurological and developmental impacts of malaria and anemia and soil-transmitted helminths (STH) infections regard the development of speech and motor skills as often delayed (Dellis, 2009; Zainal and Newman, 2018; Mazibuko and Chimbari, 2022). Neurological effects have been described, even in nonanemic deficits, when learning potential is decreased due to impairment of learners’ EF and recognition memory (Dellis, 2009). Most of the attempts to ascertain the nature of EFs reflect they are by

no means a unitary concept, as traditionally it has only been seen from a cognitive perspective (Kouklari et al., 2019).

The idea of EFs can be thought of in numerous ways. Working memory can be viewed in relation to EFs using a cognitive science approach. The capacity to temporarily store and manipulate information is known as working memory (Melrose et al., 2018). The key elements of EF are identified as including “(a) anticipation and deployment of attention; (b) impulse control and self-regulation; (c) initiation of activity; (d) working memory; (e) mental flexibility and utilization of feedback; (f) planning ability and organization; and (g) selection of efficient problem-solving strategies” (Anderson, 2008, p. 4). The EFs provide cognitive processing deficits that enable students to have agency over various domains with a view to achieving the learning goals. Furthermore, EF deficits have been found to be linked with attention deficit hyperactivity disorder (ADHD), not oppositional defiant disorder (ODD). Social problems are principal to the difficulties associated with ADHD. Children with ADHD struggle to take turns, and often interrupt and intrude into others’ space. The literature asserts that children with ADHD are stigmatized and fail to obtain peer acceptance, particularly in the schooling environment and at a societal level (Clark et al., 2002). ADHD symptoms, such as hyperactivity, inattention, and impaired executive function, are all identified as contributing factors to the poor school, learning barrier and social functioning often recognized in young children with ADHD (Gau et al., 2015). The literature has portrayed that ADHD, learning difficulties and behavioral problems are associated with deficits in EF (El Wafa et al., 2020). Some scholars have indicated that deficits in inhibition, working memory and cognitive flexibility have been linked with mathematical difficulties in children with normal IQ (Bull and Scerif, 2001; Altemeier et al., 2006; Aarnoudse-Moens et al., 2009). Therefore, early treatment of children with ADHD and other chronic conditions could potentially mitigate the memory and learning deficits, especially in preschool learners, though these chronic conditions tend to be lifelong. Recent evidence suggests that early identification of “at-risk children should take place around the age of 5 years when they enroll in a preschool because appropriate interventions and support can have a significant impact on future academic progress (Mazibuko and Chimbari, 2022).

## 2.1. Historical development of executive functions

While the concept can be defined differently, there is a common view in the literature that EF involves a diversity of cognitive processes, namely planning, working memory, attention, inhibition, self-monitoring, and self-regulation (Gioia et al., 2000; Goldstein et al., 2014). This paper describes self-monitoring as a process where children evaluate themselves on how they perform in a specific task. According to Goldstein et al. (2014) although the historical evidence suggests that the executive dysfunctional challenge was initially identified as a control mechanism as far back as 1840, it was only in 1970 that the term ‘executive functions’ started to be used.

In tracing the origin of the term, we must mention the case of the patient Phineas Gage, as “the earliest and best cited example of the impact of frontal lobe pathology on the executive function” (Anderson et al., 2008). Harlow (1869) narrates the story of Phineas Gage, one of his clients, on how a tamping iron penetrated his skull and damaged

his frontal cortex, resulting in erratic behaviour and debilitating personality change.

The executive skills are regarded as subservient to the supervisory role that involves integrating information stored elsewhere in the brain (Stuss and Alexander, 2000; Shallice, 2004). Morgenstern and Bates (1999) and Otero and Barker (2014) regard that, at the clinical level, this challenge mainly results from the damage to the frontal lobes, which subsequently affect different domains of neuropsychological functioning. The paper asserts that some children are born with weak EFs, injury to the frontal lobe of the brain, ADHD, depression, and stroke act. Zelazo et al. (2016) provide an understanding of normative brain development — that the frontal lobes undergo a prolonged period of development spanning from infancy to early adulthood. As a life course construct, it is worth noting that the environmental stimuli could be instrumental during the development, particularly as children transition. In the African context, families and communities are regarded as essential systems in the development of the child.

Zelazo et al. (2016) identify three skills serving as ways to actively and intentionally control attention to accomplish a goal, namely cognitive flexibility, working memory and inhibitory control. First, cognitive flexibility focuses on thinking about something in diverse ways and being able to adjust to changing demands or priorities and perceptions. Some of these children with a lack of cognitive flexibility struggle to change and may not know how to react when a change is required; this normally leads to anxiety, anger, frustration and giving up (Otero and Barker, 2014). Conversely, this suggests that one should have adaptable thinking and the ability to adjust and solve problems. Second, the working memory includes both keeping information in mind and, usually, mentally working with it in some way. This differs from short-term memory, which is about “holding information in mind” (Diamond, 2013, p. 8). Third, inhibitory control is regarded as the process of deliberately suppressing attention to something, such as ignoring a distraction, stopping an impulsive utterance, or overcoming a highly learned response. Diamond (2013) regards inhibitory control as the ability to control one’s holistic functioning, including attention, behavior, thoughts, and/or emotions that are acceptable and appropriate in society. Generally, these skills also help learners and people to stay focused and disciplined when one must finish certain tasks. When one lacks this kind of function, one is likely to be driven by impulses, habits, and external stimuli.

The multidimensional assessment of EF is evident in the Delis rating of EF (D-REF), which is a set of rating scales designed to assess executive functions manifested through constituent subprocesses in children and adolescents between the ages of 5 and 18 (Warnick et al., 2015). The D-REF is described as a:

supplemental assessment of children and adolescents demonstrating behavioral or cognitive difficulties often associated with attention-deficit/hyperactivity disorder (ADHD), autism spectrum disorder (ASD), traumatic brain injury (TBI), learning disorders/disability, and other developmental, psychiatric, neurological, or medical conditions known to affect executive functions. (ibid: 597).

From this review, it is apparent that there are diverse causes of EFs. The Western culture seems easy to diagnose a particular behavior as being abnormal. For instance, the 5th proposition of the

person-centered approach, describes all behavior as consisting of purposeful endeavors to satisfy the needs as experienced (Glober et al., 2013). Nwoye (2017) advocates for the deconstruction of psychopathology and highlights the need to address the gap observed in the Western paradigm to psychopathological practice and treatment that makes it unable to deal decisively with the certain presenting illness of the Black African client. It is therefore paramount to guard against possible misdiagnosis and misplacement of clients in the process.

## 2.2. Executive functions and learning

There is evidence depicting EFs as providing a foundation for learning and achievement, in that it provides both direct and indirect roles in classroom learning (Zelazo et al., 2016). In relation to this view, these skills do influence students to sit still, pay attention, remember and follow rules, and flexibly adopt new perspectives, among other things. Aarts and Dijksterhuis (2000) are of the view that behaviors that are carried out less often are more likely to be accurately predicted by intentions towards the behavior. In explaining the relationship between past and future behavioral patterns, this assertion confirms the assumption that if the behavior that has been performed many times in the past, the related future behavior becomes increasingly associated with the automated process. This assertion is further defined by Bay and Daniel (2003), who argue that past behavior makes a substantive contribution to understanding future behavior. Goldstein et al. (2014) discuss the EFs in education in relation to Luria's neurodevelopmental model, which postulates specific developmental stages related to stages of higher cortical maturation. The time dimension is one of the crucial aspects of learning. As Barkley (2010) asserts, past experience, and the related prior learning experience, are essential in the development of new learning.

Alternatively, empirical evidence, particularly from epidemiological studies, supports the relationship between executive functioning and illnesses and infections. Studies have linked cognitive functions and educational loss to a lack of deworming or schistosomiasis infection (Terer et al., 2013; Ezeamama et al., 2018; Sacolo-Gwebu et al., 2019). Child development may be compromised by diseases such as schistosomiasis and STH and contingent responses to infections, such as fever and hypertrophy of the muscles (Mazibuko and Chimbari, 2022). Schistosomiasis and STH may impair cognitive function because of one, or a combination, of parasitic infection symptoms, such as iron deficiency anaemia (Zainal and Newman, 2018). This has a negative impact on children's learning, memory, school attendance and academic performance. Though few studies in Africa have investigated the effects of EFs in relation to learning and language, there is a knowledge gap regarding whether diseases and infections have the same impact on expressive language skills as they may have on other cognitive skills.

Nazel et al. (1999) show how parasitic infection detrimentally affects cognitive functions of school children aged 9 to 12 years. This study reported that although the infected children's overall IQ (intelligence quotient) scores were not significantly lower than those of the controls, they performed significantly worse on the comprehension, vocabulary, and image completion subtests (Nazel et al., 1999). Reading comprehension is a difficult process that

demands the integration of skills needed to process information at the word and sentence levels to comprehend what is being read. EF is likely associated with reading comprehension through its relationship with decoding and oral language, and this finding provides additional support for the role of EF in reading comprehension as a potentially crucial precursor to skilled reading. Another study that examined the relationships between oral language, decoding, and two components of EF (cognitive flexibility and working memory) and reading comprehension found that these relationships exist (Spencer et al., 2020). Learners with specific language impairment (SLI) are at high risk for developing subsequent social, emotional, and behavioral issues, as well as delayed literacy skills, such as reading and spelling (Prathanee et al., 2007).

Factors found to be influencing cognitive function have been explored in several studies on autism spectrum disorder (ASD). ASD is a neurodevelopmental condition characterized by difficulties in social communication and interaction, as well as restricted, repetitive patterns of behavior, interests, or activities (Demetriou et al., 2019). The findings from ASD studies discovered a link between executive dysfunction and ASD symptoms and may be connected to anatomical and functional differences in the prefrontal cortex (PFC; Chen et al., 2019; Johnston et al., 2019; Ameis et al., 2020; Andreou et al., 2020). The assessment of EF and activities of daily living (ADL) is critical in the diagnosis of Alzheimer's disease (Martyr and Clare, 2012).

In a study conducted by Guarino et al. (2019), EFs are found to be impaired in Alzheimer's disease from the beginning, primarily due to prefrontal cortex degeneration, inhibitory abilities, attentional and visuospatial functions are compromised. Alzheimer's disease is known as a severe, irreversible illness marked by a gradual deterioration in cognitive function that interferes with the standard instrumental, necessary daily activities (Martyr and Clare, 2012). There is a need for neuropsychological assessment of EFs in preclinical and clinical phases of Alzheimer's disease (Allain et al., 2013).

## 2.3. Executive functions and psychological assessment

In this section, it is worth acknowledging the view that, while children and adults with learning and attention are found to be struggling profoundly with many of the skills that most of us take for granted, literature on psychological assessments warns against possible faulty claims regarding test performance, particularly in as far as incumbents from other cultural backgrounds are concerned. Kim and Zabelina (2015:130) regard it as "inappropriate to use the same assessments with individuals of various racial/ethnic minority groups without norming the instrument to reflect those groups." Shuttleworth-Edwards et al. (2013) assert that cross-cultural literature is of the view that focusing on ethnicity or race differences alone is likely to lead to faulty claims regarding test performance, due to cultural influence, such as acculturation to the predominant culture, amongst other factors. Acculturation is multidimensional. Acculturation in the South African context could be described as mostly multidimensional in the sense that individuals find themselves having to negotiate their identities within these plural cultural contexts (Adams and van de Vijver, 2017). García-Campos et al. (2018) emphasize that the success in promoting EFs for all students is manifested through considering their diversity. It is on similar basis

that the challenges of inclusive education proactively promote conducive teaching environments that accommodate human differences and overcome existing exclusions. It is interesting to note that [Adams and Abubakar \(2016\)](#) are of the view that, even in these multidimensional considerations of acculturation, outcomes of acculturation seem to be somewhat associated with Western cultural values, norms, and attitudes.

[Laher and Cockcroft \(2013, p. 6\)](#) assert that “cognitive tests are still largely viewed with suspicion in South Africa as a result of their past misuse to enforce and support divisive racial apartheid practices.” In line with this view, made almost two decades after the advent of the new democracy, there is a notion that the value of psychological testing is not without contestation. In this regard, this assertion does not suggest that the benefit of psychological testing on society should be rejected, but that they need to be undertaken with consideration of cultural diversity. [Laher and Cockcroft \(2013\)](#) further highlight that the neuropsychological assessment in South Africa, with its focus on the assessment of brain-behavior relationships, also faces major challenges because of the complexity and diversity of the country’s population, varying levels and qualities of education, socio-economic status discrepancies and rapid acculturation. In African countries, measuring EF skills in children has been hindered by the lack of assessments that are both easy to deploy and scalable ([Willoughby et al., 2019](#)).

An assessment of the capacity to understand mental functions, such as beliefs, intentions, deception, and emotions, among others, can be measured using a developmental neuropsychological assessment test such as the ‘theory of mind’ test (ToM; [Berenguer et al., 2018](#)). ToM is also known as mentalizing skills, which is the ability to ascribe cognitive states, such as beliefs, intentions and emotions, to both oneself and others, as well as to predict subsequent behaviors ([Andreou et al., 2020](#)). A model of executive dysfunction, which includes defective ToM was put out to explain behavioral issues in ASD, including impaired ToM. They concluded that discrete EFs (set shifting, response inhibition, and working memory) may serve as useful cognitive indicators for differentiating between ASD and ADHD after reviewing research findings on a variety of neurodevelopmental diseases ([Demetriou et al., 2019](#)). However, it should be noted that a study to better understand the nature of EFs itself is necessary before determining the specific nature of the EFs developmental pathway and its impact on ToM in ASD ([Kouklari et al., 2019](#)).

EFs can be assessed by the behavior rating inventory of executive function (BRIEF). “The BRIEF consists of three scales, including skills such as adjusting to changes in routine (Shift), suppressing impulsive responses (Inhibit), and moderating one’s emotions (Emotional Control)” ([Bertollo and Yerys, 2019, p. 5](#)). In a study examining whether early childhood EFs predict new onset or worsening of ADHD and/or depression, the BRIEF has been shown to differentiate ADHD subtypes and to be a useful tool for assessing EFs deficits in ADHD ([Hawkey et al., 2018](#)). The type of self-regulation deficits assessed by the BRIEF in children may be linked to disorders such as ADHD and depression as early as preschool ([Hawkey et al., 2018](#)). Examination of everyday behavior is a complementary approach to assessing EFs in preschool children. The child’s everyday environments, both at home and at school or daycare, are important venues for observing routine manifestations of the EFs. Historically, examining daily behavior is an additional method for psychological

assessing executive skills in preschoolers ([Isquith et al., 2004](#)). The child’s regular contexts, such as home, school, or daycare, are crucial places to observe the EFs in action on a regular basis.

### 3. Afrocentric paradigm

[Alem \(2019, p. 17\)](#) argues that the worry for most African scholars springs from the fact that Africa continues to be the greatest consumer of Western scientific and technological products, but which bear little relevance to Africa. It is worth noting that there is evidence suggesting that disability activism has grown transnationally in Africa, but there are still unanswered questions regarding the appropriateness of universalizing disability knowledge and principles ([Haang’andu, 2019](#)). This challenge could be mainly attributed to having African experiences perceived and written from Eurocentric perspectives. In relation to this view, there is a need to explore resolutions that embrace the Afrocentric ethos.

For some time, the misunderstanding of disability in the African context has led to the negative perception and treatment of children with disabilities ([Eskay et al., 2012](#)). In the process, Africans deprived themselves the prime opportunity to develop African epistemologies that were essential in developing understanding of disability and knowledge creation ([Sefotho, 2021](#)).

Two aspects worth noting in respect to the Afrocentric perspective, are the relationship between people and inanimate objects, including the visible and the invisible, and the multidimensionality of time, namely the past, present and future. For instance, it suffices to indicate that, from the Afrocentric perspective, it is not all social ills that originate from visible sources. Taking the example of ancestry, most Africans share a belief of the active role of ancestry and the link between the living and non-living. According to [Nwoye \(2017, p. 47\)](#), “most African people many a time act from the understanding and assumption that various types of misfortune, illness, death, and failure arise from the activities of unseen forces, unknown and unseen infuriated spiritual agencies, and revengeful ancestors.” Despite the political systems, “Sub-Saharan Africa has myriad beliefs, rites and representations of both the living and the dead, which are also viewed with prejudice by westerners” ([Bellucci, 2010, p. 14](#)). This dialectical inter-phase between the European African practices could be viewed as having impacted on the psychological, economic, cultural, political, and other levels.

#### 3.1. Goal-directed behavior

Recognizing the applicability of cultural construction in Afrocentric perspective implies that all thoughts, feelings, and human activities are the result of historical experiences that become an integral part of the culture ([Eskay et al., 2012](#)). As indicated in [Glober et al. \(2013\)](#), every behavior is purposeful and goal-directed on the experiencing individual, no matter how odd it may appear to another person. [Wit and Dickinson \(2009\)](#) state that for an action to be considered goal-directed, it must be instrumental, meaning that it has to be characterized by two properties: learned and controlled, by the causal relationship between the action or response, and its consequences or outcomes.

### 3.2. Personhood and cultural construction

Many writers observe that, despite Africa's ethnic pluralism and diverse nature of cultures, underlying affinities in many areas of African life is the notion of communitarian, with its emphasis on the relationship between the self and the community (Gyekye, 2010; Kalumba, 2020). Furthermore, Ikeke (2014, p. 146) construes the nature of personhood by explaining the significance of the "self in the community" in the African society. Kalumba (2020, p. 137) perceives the communitarians in relation to individualists and regards the latter's notion of a person as an "atomic, self-sufficient individual whose relationship to the community is contingent and voluntary." In contrast, communitarians view the people as social beings who owe their development on community. This philosophical analysis of personhood does not necessarily deny the individual existence but views the individual as incomplete without the community. This thinking is manifested through shared features of the moral life and thought found in various African societies. This section also focuses on the recognition of the role of social interactions in the shaping of identity. In this regard, self-identity is viewed as not made in isolation, but that it is formed through negotiated relationship with others.

In explaining the place of rights in the African context, Molefe (2017) refers to the idea of personhood and conceives it as representing "an African approach to secure a life of dignity." In this regard, Molefe (2017) cites Menkiti's conception of personhood as defined through three different ideas. The first idea is the view of personhood as a claim about personal identity; second, by a claim about moral status and third, a claim about human beings who are morally upright or virtuous. Key to this view is the notion that, in the African context, rights are considered to be secondary to duties "because they will have a tendency to clash with the fundamental moral-social goal posited by a morality of duties of securing the well-being of all human beings entailed by this idea of personhood" (Ibid:1). Zelazo et al. (2016) acknowledge the individual differences in EFs and primarily attribute them to aspects of experience in childhood, such as the socioeconomic conditions in which children are reared, the differences in parental and out-of-home care that children receive, and the differences in cultural beliefs and practices in families and communities.

The conception of EFs along the lifespan suggests that at the elderly stage, the cognitive functioning finds itself to follow a declining trajectory. This may be viewed in contrast to the African notion of the elderly, which is mostly associated with an elderly person being the much respected repository of a society's values and wisdom, which have remained unchanged over the ages (Mbele, 2004). The author articulates this assertion with emphasis on the value of intergenerational relationships. From the Afrocentric perspective, this kind of cultural construction could be viewed as implying that not all thoughts, feelings and human activities develop naturally but that most of them are the result of historical experiences that become an integral part of culture (Eskay et al., 2012). Zelazo et al. (2004) protect this view and state that it is by no means suggesting that the elderly are not capable of high levels of conscious reflection, but rather that their abilities are likely to be resource-demanding and effortful.

### 4. Implications

The current study examined the significance of the integration of African and Eurocentric perspectives in understanding and enhancing executive functioning skills in the African context. African philosophies and interventions have received little explicit attention in the design and evaluation of school readiness interventions for children with difficulties in their executive functioning skills, which poses threats to recognizing African knowledge as a proven science. Furthermore, the paper demonstrated that there is limited literature on empirical research published on EF using African philosophies as a theoretical component. Therefore, the dearth of empirical research in this studied subject calls for more measures to undertake empirical studies to close the gap between a theoretical perspective, and its application in the real world, to determine the relevance of EF using African philosophies to address the subject of disability.

This study also contributes to the international evidence linking Afrocentricity and the executive functioning skills of children. The discussion derived from the lens of Afrocentricity did not appear to be plagued by the issues that are often found with many other Eurocentric perspectives. Afrocentricity was able to address limitations on executive functioning skills in African children that were a particular concern in the African context. Considering, the absence of African epistemologies used to gain insight into predicting and exploring the subject of disability, no conclusions can be made about affected individuals in the African context. This suggests that avoiding broad generalizations about the causes and effects of disabilities could be achieved by making African epistemologies the foundation of any analysis that involves studying African people.

Sufficient literature regard moving towards understanding EFs in an African context using African philosophies to provide evidence of its appropriateness to fulfil a fundamental right of all children or learners despite their diversity in this context. The main finding of this paper suggests that it is not the mere promotion of EFs that is essential in the success of quality education, but that there is a need to acknowledge several contextual and interconnected dynamics which impact on education systems, namely environmental, cultural, and systemic.

### 5. Conclusion

It is essential to provide understanding, analyze and design solutions that are embraced within the Afrocentric ethos, instead of looking at African challenges using the Eurocentric perspective as a lens. The paper confirms that using African epistemologies to measure executive functioning skills in young African children has the potential to make fundamental contributions to the scientific body of knowledge. It is evident in this paper that the EFs that serve as a source and path to direct the thoughts and actions of individuals and that these need not be viewed in isolation from the spiritual dimension. Executive functions remain crucial for the skills that are necessary for purposeful, goal-directed, and future oriented activity. As a result, the process of addressing related impairments needs to be viewed as a collective responsibility.

Despite the diverse and lack of universal definitions, this paper also provides a communitarian view of EFs, emphasizing the collective conception and intervention in line with the African perspective. In

this process, there was an acknowledgement of the significance of EFs along the developmental path beginning in early infancy, but reservations are raised regarding the view that such development plateaus at early adulthood and then declines thereafter. The significant assertion is made that, despite the societal evolution, the elderly are still regarded as the part of society that wield knowledge and wisdom. Emphasized in this paper is also the notion that, despite the numerous benefits of transnational activism, disability activism in Africa would be more effective if built around an Afrocentric ethos that considers the existential factors of parental care, families, society, and the experience of disability. The paper concludes by rejecting the individualist conception and interventions on learner EFs and advances the communitarian view that affords the holistic human functioning and development in the communal existence.

## Author contributions

MM led all aspects of the development of the paper from conceptualization and designing the study, to identification of the

study via databases to finalization. MS and ZM played a leading role in conceptualizing Afrocentricity as a lens to describe EFs and made contributions to other sections of the paper. All authors contributed to the article and approved the submitted version.

## Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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